**BIOCHEMISTRY**
**Volume 58, Numbers 1-12, 1993**
(A translation of *Biokhimiya*)

**Engl./Russ.**

**Volume 58, Number 1, January, 1993**

Diadenosine Oligophosphates: Metabolic Pathways and Role in Regulation of the Functional Activity of Cells - I. N. Yakovenko and V. E. Formazyuk ..... 1 3
Protonation and Deprotonation of an Enzyme During Catalysis: I. Influence of Substrate - B. I. Kurganov and E. V. Petushkova ..... 16 25
Studies on Phage T7 DNA-Dependent RNA Polymerase Using GTP Analogs: Affinity Modification by Fluorescent Labeling and Studies of Interaction With Template - A. A. Mishin, Yu. V. Khropov, V. L. Tunitskaya, and S. N. Kochetkov ..... 28 43
High-Performance Liquid Chromatography for Analysis of Auxins - E. F. Kobzar' and O. P. Serdyuk ..... 33 50
Membrane Enzymes of Cells Under Hypoxic Conditions: Protective Effect of Pyrazidol - I. A. Goroshinskaya, L. V. Mogil'nitskaya, L. A. Nemashkalova, and A. A. Khodakova ..... 41 62
ATP Formation, Oxygen Evolution, and Carotenoid Conversions in Chloroplasts Illuminated With Short Light Flashes: A New Hypothesis for the Evolution of Molecular Oxygen - N. V. Goncharova, G. A. Ptitsyn, G. A. Kornyushenko, and E. V. Pakshina ..... 45 70
Cyclic Nucleotides and Inositol Triphosphate as Biochemical Modulators of the Receptor Domain Ion Channel Conductance - S. A. Talako ..... 53 81
mRNA With Extended Shine–Dalgarno Sequence is Translated Independently from the Ribosomal S1 Protein - A. G. Balakin, S. L. Bogdanova, and E. A. Skripkin ..... 63 98
Notable and Anniversary Dates of the History of Biochemistry for 1993 - N. P. Voskresenskaya, G. N. Makhmutova, and T. A. Koptseva, Compilers ..... 70 108

**Volume 58, Number 2, February, 1993**

The Structure of Lipopolysaccharides of Gram-Negative Bacteria. I. General Characterization of the Lipopolysaccharides and the Structure of Lipid A (A Rewiew) - Yu. A. Knirel' and N. K. Kochetkov ..... 73 166
The Structure of Lipopolysaccharides of Gram-Negative Bacteria. II. The Structure of the Core Region (A Review) - Yu. A. Knirel' and N. K. Kochetkov ..... 84 182
A Phosphorus-Containing Polysaccharide of the *Actinoplanes* sp. INA 3697 Cell Wall - A. S. Shashkov, G. M. Streshinskaya, I. B. Naumova, L. P. Terekhova, and I. V. Alferova ..... 100 202
Melanocyte Stimulating Hormone Inhibits Growth of Amelanotic Cells of Human Malignant Melanoma With Concomitant Changes in Concentrations of cAMP, Phosphatidylinositols, and Inositol Phosphates - V. A. Sukhanov, I. M. Voronkova, S. V. Shvets, and L. F. Morozova ..... 107 211

| | Engl. | Russ. |
|---|---|---|
| Specific Effects of dTTP γ-p-Azidoanilide on *Escherichia coli* DNA Polymerase I and Its Klenow Fragment - N. V. Kudryashova, M. Yu. Shamanina, T. S. Godovikova, E. A. Anan'ko, F. F. Akhmadieva, and A. G. Romashchenko | 116 | 224 |
| Isolation and Properties of Arabinofuranosidase from *Geotrichum candidum* 3C - A. M. Golubev, A. Yu. Kilimnik, N. A. Rodionova, L. V. Kaprel'yants, and K. N. Neustroev | 124 | 234 |
| Pigment Degradation, Lipid Peroxidation, and Free Radicals in Leaves During Autumn Senescence - M. N. Merzlyak, G. A. F. Hendry, N. M. Atherton, T. V. Zhigalova, V. K. Pavlov, and O. V. Zhiteneva | 129 | 240 |
| Studies on the Properties of Oxaloacetate Decarboxylase from Chloroplasts of Sunflower Leaves - V. V. Ivanishchev and B. I. Kurganov | 136 | 250 |
| Generation on the Inner Mitochondrial Membrane of $\Delta\mu_{H^+} = 250$ mV is a Necessary but not Sufficient Condition for ATP Synthesis - L. F. Dmitriev, M. V. Ivanova, and L. N. Davletshina | 139 | 255 |
| Effect of 5H-α-Cholest-8(14)-en-3β-ol-15-one on Cholesterol Metabolism in Cultured Rabbit Hepatocytes - É. T. Mambetisaeva, V. A. Kosykh, A. Yu. Misharin, A. V. Malyugin, E. I. Kosenkov, E. A. Podrez, and V. S. Repin | 144 | 261 |
| Some Characteristics of Enzymatic Antioxidative Protection of Human Blood Plasma - E. E. Dubinina | 149 | 268 |
| Regulation of Absorption of Cholesterol in Epithelial Cells of Human and Rat Small Intestine - I. G. Safonova, D. D. Sviridov, P. Rampal, J.-L. Nano, M. Yu. Pavlov, and V. S. Repin | 154 | 274 |
| Stimulatory and Inhibitory Effects of Individual Blood Serum Transport Proteins on Thyroid Hormone Binding to Human Placental Plasma Membranes - E. I. Karpyza, I. E. Kiklevich, M. N. Ermolenko, and O. V. Sviridov | 162 | 285 |
| Metabolism of Neutral Lipids in Nuclei and Chromatin of Thymocytes from Control and γ-Irradiated Rats - T. P. Kulagina, S. A. Shuruta, and I. K. Kolomiitseva | 169 | 295 |
| High Molecular Weight Products of Hydrolysis of Soybean Glycinin by Trypsin - A. D. Shutov, V. I. Senyuk, I. A. Kakhovskaya, and J. Pineda | 174 | 301 |
| Isolation and Characterization of DNA-Specific Catalytic Antibodies from Patients With Systemic Lupus Erythematosus - G. V. Gololobov, A. É. Bogomolova, R. P. Yadav, M. V. Ermolaeva, K. M. Belostotskaya, T. B. Prokaeva, A. M. Shuster, and A. G. Gabibov | 183 | 313 |


**Volume 58, Number 3, March, 1993**


| | | |
|---|---|---|
| Enzyme Protonation—Deprotonation Steps in Catalysis. II. The Effect of a Modifier - B. I. Kurganov and E. V. Petushkova | 189 | 323 |
| Peculiarities of the Kinetics of Hydrolysis of Phospholipids by Phospholipase C from *Bacillus cereus*. Hydrolysis of Phosphatidylethanolamine in Different Aggregation States - A. A. Selishcheva, T. A. Miroshnikova, M. V. Voronin, and I. A. Vasilenko | 202 | 340 |
| Modification of Histidine Residues of RNA Ligase by Diethyl Pyrocarbonate - V. Sabaliauskiene, L. Kiss, and B. Juodka | 208 | 348 |

| | Engl. | Russ. |
|---|---|---|
| Comparative Characterization of Some Parameters of the Cell Nucleus in the Series Myeloma—Hybridoma—Lymphocyte - I. A. Sokolova, A. Yu. Volgin, T. D. Smirnova, I. N. Lunga, N. N. Khodarev, and S. S. Shishkin | 215 | 357 |
| Purification and Some Properties of Lectins from Snowdrop (*Galanthus nivalis* L.) and Spring Snowflake (*Leucojum vernum* L.) - L. Ya. Antonyuk | 223 | 367 |
| Change in Adenine Nucleotide Pool in *E. coli* 1257 Cells Under Low-Intensity He-Ne Laser Illumination - N. A. Romanova, L. Yu. Brovko, M. A. Sepulveda-Bessera, and N. N. Ugarova | 230 | 376 |
| Effect of Monovalent Cations on Chromatin Structure in Ehrlich Ascites Carcinoma Cells - I. M. Danko and S. D. Kaz'min | 237 | 385 |
| Specific Binding of Nuclear Proteins to Regulatory Region of Rat Tryptophan Oxygenase Gene - G. I. Chikhirzhina, S. A. Fedorova, I. N. Chesnokov, and E. V. Romanovskaya | 243 | 392 |
| Eeffect of $OCl^-$ and $Ag^+$ on Active and Passive Calcium Transport in Sarcoplasmic Reticulum - A. E. Antipenko, E. V. Pechatnikova, G. P. Dizhe, I. E. Krasovskaya, B. P. Sharonov, and S. N. Lyzlova | 249 | 399 |
| Probucol and α-Tocopherol Stimulate Bile Acid Synthesis in Cultured Rabbit Hepatocytes - Yu. V. Lakeev, V. A. Kosykh, E. I. Kosenkov, V. P. Tsibul'skii, O. Yu. Tikhomirov, I. A. Antonov, and V. S. Repin | 254 | 406 |
| Properties of β−Carotene 15,15′-Dioxygenase Stabilized by Lutein and Dithiothreitol During Isolation - Yu. V. Ershov, A. A. Dmitrovskii, and V. Ya. Bykhovskii | 263 | 416 |
| Product Stabilization and Dynamic Stability in Unbranched Metabolic Pathways. What are the Optimal Structures? - B. N. Kholodenko and O. V. Demin | 270 | 424 |
| Signal-Transducing and Low Molecular Weight GTP-Binding Proteins of Lung and Endothelium: Localization in Membranes and Cytosol, and Interaction With F-Actin - M. P. Panchenko, M. G. Starikova, A. V. Grishin, E. V. Nyupenko, N. V. Kabaeva, Yu. A. Romanov, A. S. Antonov, and V. A. Tkachuk | 281 | 438 |
| Role of GTP-Binding Proteins in Regulation of $Na^+/H^+$-Exchange and $Na^+,K^+,2Cl^-$-Cotransport: Effect of Fluoride Ion - I. A. Kolosova, J. Bernhardt, S. N. Orlov, and F. R. Buhler | 295 | 456 |
| Changes in Sphingosine Content in Regenerating Rat Liver Cell Nuclei - A. V. Alesenko, É. A. Pantaz, M. Yu. Pushkareva, S. A. Rusakov, and G. N. Filippova | 298 | 461 |
| Effects of Physical Training on the Structure and Metabolism of Sekeletal Muscles in Athletes - T. L. Nemirovskaya, B. S. Shenkman, A. N. Nekrasov, A. V. Kuznetsov, and V. A. Saks | 306 | 471 |
| Phenyldicarbaundecaboran Binding to Proteins, Membrane Fragments, and Whole Cells - V. A. Loginov | 312 | 480 |

**Volume 58, Number 4, April, 1993**

| | | |
|---|---|---|
| Biochemical Pathways Regulating the Responsiveness of Cells to Hormones - M. A. Krasil'nikov | 317 | 499 |
| Control Theory of "Nonclassical" Enzyme Systems and Methods for the Study of Metabolic Channelling - B. N. Kholodenko | 325 | 512 |
| Purification and Physicochemical Properties of the Extracellular Xylanolytic Enzyme Complex of the Fungus *Aspergillus japonicus* - L. P. Ryazanova, Kan Don Uk, O. P. Beletskaya, and I. S. Kulaev | 337 | 529 |
| Specificity and Functional Significance of the Enzymes of the Extracellular Xylanolytic Complex of the Fungus *Aspergillus japonicus* - L. P. Ryazanova, Kan Don Uk, O. P. Beletskaya, and I. S. Kulaev | 346 | 541 |

| | Engl. | Russ. |
|---|---|---|
| Chemical Activation of α-Galactosidase from *Trichoderma reesei* - A. M. Kachurin, K. N. Neustroev, A. M. Golubev, F. M. Ibatullin | 353 | 550 |
| Effect of Enzymatic and Chemical Deglycosylation on Physicochemical Properties of Glucoamylase from *Aspergillus awamori* X100/D27 - K. N. Neustroev, A. M. Golubev, L. M. Firsov, I. G. Denisov, I. I. Protasevich, and A. A. Makarov | 362 | 562 |
| Effects of Inhibitors of Glycosylation on Glycosidase Secretion in *Aspergillus awamori* Var. X100/D27 - K. N. Neustroev, A. M. Golubev, F. M. Ibatullin, and L. M. Firsov | 370 | 574 |
| Activity of the Antioxidant System of Rat Liver Under Benzidine Intoxication and After Enomelanin Administration - E. E. Lomonosova, A. T. Pikulev, and V. P. Kurchenko | 374 | 580 |
| Damage to $Ca^{2+}$-Loaded Mitochondria by Fatty Acids and Protective Effect of L-Carnitine - V. I. Dedukhova, E. N. Mokhova, A. A. Starkov, D. Battelli, M. Bellei, and V. A. Bobyleva | 377 | 585 |
| Distribution and Stability of Oligonucleotide Derivatives in Mouse Tissues - V. N. Karamyshev, V. V. Vlasov, D. Zon, E. M. Ivanova, and L. A. Yakubov | 381 | 590 |
| Propionate Pathway Metabolites as Regulators of Fatty and Dicarboxylic Acid Oxidation in Liver Mitochondria - N. I. Fedotcheva, N. N. Gessler, S. P. Anikeeva, D. A. Ignat'ev, V. Ya. Bykhovskii, and M. N. Kondrashova | 387 | 599 |
| Isolation and Kinetic Properties of NAD-Dependent Malate Dehydrogenase from Cotton Leaf Chloroplasts - V. V. Ivanishchev and B. I. Kurganov | 392 | 606 |
| Mechanism of Discrimination of *E. coli* $tRNA^{Phe}$ by Yeast Phenylalanyl-tRNA Synthetase - A. M. Khvorova, Yu. A. Motorin, and A. D. Vol'fson | 398 | 613 |
| Organization of Proteoliposomes and Proton Translocation in Relationship to Conformational State of Thylakoid Membrane Proteolipids - V. M. Trusova, S. P. Makarenko, and M. I. Molchanov | 403 | 620 |
| Effect of Calmodulin on the Activity of NAD-Kinase from Rabbit Liver - E. R. Bulygina, O. L. Voronina, and V. I. Telepneva | 411 | 632 |
| Phosphorylation of Glyceraldehyde-3-phosphate Dehydrogenase - É. A. Sergienko, A. A. Ermakova, V. I. Muronets, and N. K. Nagradova | 415 | 636 |
| Inactivation of Firefly Luciferase by Long-Chain Choline Derivatives - A. F. Dukhovich, A. I. Efimov, A. A. Shchegolev, A. V. Levashov, and N. N. Ugarova | 424 | 648 |

**Volume 58, Number 5, May, 1993**

| | | |
|---|---|---|
| Supramolecular Organization of Enzyme Systems. I. Structural Aspects - G. L. Ermakov | 429 | 659 |
| Isolation and Characterization of Protein Bodies from Cotyledons from Dry *Lupinus albus* Seeds - E. N. Élpidina, Ya. E. Dunaevskii, M. A. Belozerskii, M. Duranti, and P. Cerletti | 440 | 675 |
| Isolation and Characterization of $Ca^{2+}$,$Mg^{2+}$-Dependent Endonuclease from Hepatopancreas of the Crab *Paralithodes camtschatica* - N. I. Menzorova, R. F. Zinatulin, V. V. Favorov, and V. A. Rasskazov | 444 | 681 |
| Uncoupling of Oxidative Phosphorylation in Hyperthyroidism as a Consequence of Activation of the Cyclosporin-Sensitive Pore in the Inner Mitochondrial Membrane by Water-Soluble Cytoplasmic Modulators from Rat Liver - M. Kh. Gainutdinov, V. V. Konov, R. N. Ishmukhamedov, T. N. Zakharova, M. A. Khalilova, and M. I. Asrarov | 452 | 692 |
| Estradiol-Binding Properties of Sheep Haptoglobin—Hemoglobin Complex. II. Some Preliminary Data Concerning Quantitative Binding Characteristics - G. M. Isaeva and R. U. Beisembaeva | 458 | 700 |

| | Engl. | Russ. |
|---|---|---|
| Structural Changes in Lipid and Protein Thyroxine-Binding Zones of Lipoprotein Particles Containing Human Apolipoprotein A-1 - N. A. Bovdei, O. V. Sviridov, and P. A. Kiselev | 463 | 707 |
| Hysteresis of Protonation/Deprotonation of Chloroplasts During Acid-Alkaline Titration Within 5-8 pH Range - V. K. Opanasenko | 470 | 716 |
| Effect of Tumor Necrosis Factor on Free Sphingosine Content and Sphingomyelinase Activity in Murine Liver Cells and Nuclei - S. A. Rusakov, G. N. Filippova, M. Yu. Pushkareva, V. G. Korobko, and A. V. Alesenko | 476 | 724 |
| Characterization of the Interaction of β-Carotene-15,15′-Dioxygenase from Rabbit Small Intestine With Lycopene, 15,15′-Dehydro-β-Carotene, Lutein, and Astaxanthine - Yu. V. Ershov, A. A. Dmitrovskii, and V. Ya. Bykhovskii | 483 | 733 |
| Carnosine in Adaptation to Hypobaric Hypoxia - V. N. Korobov, N. M. Doliba, and Ya. V. Telegus | 488 | 740 |
| Monoclonal Antibodies to Human Spleen Ferritin. I. Isolation and Characterization of Interactions With Isoferritins and Apoferritin - V. E. Lunev, Ya. I. Mel'nikova, S. A. Koshkin, N. M. Luneva, T. S. Cherkesova, I. A. Vasilevskaya, V. A. Preigerzon, and S. P. Martsev | 491 | 745 |
| Monoclonal Antibodies to Human Spleen Ferritin. II. Localization of Epitopes and Quantitative Parameters of Antigen Binding - Ya. I. Mel'nikova, V. E. Lunev, V. A. Preigerzon, N. M. Luneva, S. A. Koshkin, M. A. Rodionov, and S. P. Martsev | 502 | 759 |
| Analysis of Stability of Carnosine-Based Infusion Solutions - T. S. Kondrat'eva, É. E. Maidykova, and I. I. Krasnyuk | 512 | 772 |
| The Complement System - L. D. Taran | 517 | 780 |
| Influence of the Antidepressant Pyrazidole and Its Nitro Analog on cGMP-Dependent Phosphodiesterase from the Soluble Fraction of Human Brain Cortex - M. V. Medvedeva, O. A. Fedotova, V. I. Shvedov, A. A. Belov, A. E. Medvedev, and I. D. Bobruskin | 523 | 788 |
| $Ca^{2+}$-Calmodulin-Activated Cyclic Nucleotide Phosphodiesterase from the Soluble Fraction of Human Brain: Kinetic Properties and Effects of the Antidepressant Pyrazidole and Its Nitro Analog on the Enzyme - M. V. Medvedeva, A. A. Belov, N. N. Kireeva, and I. D. Bobruskin | 531 | 798 |
| Effect of Removal of Peripheral Polypeptides on Photoinhibition of Oxygen-Evolving PS II Particles from Spinach - F. T. Mamedov and R. A. Gasanov | 539 | 809 |


**Volume 58, Number 6, June, 1993**


| | Engl. | Russ. |
|---|---|---|
| The Photocycles of 13-cis Bacteriorhodopsin Analogs Contain an M-like Intermediate - L. A. Drachev, A. D. Kaulen, L. V. Khitrina, S. V. Eremin, A. A. Khodonov, V. I. Shvets, and L. N. Chekulaeva | 545 | 819 |
| Protein C: Mechanisms of Activation and Anticoagulant Effect - A. E. Kogan and S. M. Strukova | 551 | 827 |
| Isolation and Properties of Endoxylanase and β-Xylosidase from *Aspergillus oryzae* - A. M. Golubev, F. M. Ibatullin, A. Yu. Kilimnik, N. A. Rodionova, and K. N. Neustroev | 565 | 845 |
| Cleavage of O-glycosyl Linkages in Glycopeptides - F. M. Ibatullin, K. N. Neustroev, A. M. Golubev, and L. M. Firsov | 571 | 852 |
| Substrate Specificity of T4 RNA-Ligase: Role of the Purine Base of the Nucleotide in Formation of the Covalent AMP–RNA-Ligase Complex - B. A. Juodka, D. J. Labeikite, and S. I. Sasnauskiene | 576 | 857 |

| | Engl. | Russ. |
|---|---|---|
| Ion Transport in Human Erythrocytes from Patients With Different Forms of Hemolytic Anemia: a Correlation Analysis - S. N. Orlov, N. I. Pokudin, L. S. Al'Rabi, V. I. Brusovanik, and A. A. Kubatiev | 584 | 866 |
| Metabolism of Volatile Oil and Citronellol in Geranium (*Pelargonium roseum* L.) - V. V. Chubinidze, T. V. Beriashvili, and D. V. Chubinidze | 591 | 874 |
| Effects of Glycoproteins on the Oligomeric Structure and Catalytic Activity of Human Kidney α-L-Fucosidase - A. V. Pshezhetskii, E. M. Beier, M. V. Vinogradova, and G. Ya. Vidershain | 596 | 879 |
| Terpenoid Biosynthesis in Cell-Free Extracts from Several *Neurospora crassa* Strains - T. V. Katasonova, T. A. Lyudnikova, and V. A. Paseshnichenko | 607 | 891 |
| Isolation and Characterization of Metalloproteinase from *Bacillus megaterium* - I. P. Morozova, G. G. Chestukhina, M. E. Bormatova, M. Yu. Gololobov, N. M. Ivanova, E. N. Lysogorskaya, I. Yu. Filippova, O. M. Khodova, E. A. Timokhina, and V. M. Stepanov | 612 | 896 |
| A New Method for Isolation and Purification of Restriction Endonuclease SsoII - A. S. Karyagina, I. Ya. Levchenko, and I. I. Nikol'skaya | 622 | 908 |
| Renaturation of Bacterial Metalloproteinases - T. I. Vaganova, N. P. Medvedeva, and V. M. Stepanov | 627 | 913 |
| Coprecipitation of Pepsin With Products of Enzymatic Peptide Synthesis as a Factor Limiting the Activity of the Enzyme - I. Yu. Filippova, E. N. Lysogorskaya, V. V. Anisimova, C. A. Abdel Malak, G. I. Lavrenova, E. S. Oksenoit, and V. M. Stepanov | 634 | 921 |
| A Study of the Inhibition of Amylases by Dimethylaminomethylferrocene - A. N. Shevel'kova, A. D. Ryabov, and A. P. Sinitsyn | 640 | 928 |
| Coproporphyrin I-Modified IgG: the Possibility for Direct Detection of Antigen–Antibody Complexes - G. I. Lepesheva, I. V. Turko, V. L. Shestakov, and V. L. Chashchin | 648 | 938 |
| Interaction of Native and Fully Reduced Human Serum Albumin With Apolipoprotein E and Very Low Density Lipoproteins from Human Plasma - A. D. Dergunov and Yu. Yu. Vorotnikova | 653 | 944 |
| Mechanism of Inhibition of Enzymatic Oxidation of Indole-3-acetic Acid by Phenols - S. N. Krylov, S. M. Krylova, and L. B. Rubin | 660 | 953 |
| Affinity Modification of Nucleic Acid Binding Proteins in Mammalian Cells by Alkylating Oligonucleotide Derivatives - V. V. Vlasov, E. M. Ivanova, M. V. Nechaeva, E. Yu. Rykova, L. A. Yakubov, and D. Zon | 667 | 962 |
| Effects of Progesterone and Tamoxifen on EGF-Dependent Activation of Phospholipid Turnover in Uterine and Mammary Adenocarcinoma Cells - M. A. Krasil'nikov, V. A. Shatskaya, and L. S. Bassalyk | 671 | 967 |


**Volume 58, Number 7, July, 1993**


| | | |
|---|---|---|
| Hydrophobic Chromatography and Characterization of Liphases Secreted by the Fungus *Rhizopus microsporus* UzLT-4B - Zh. Kh. Dierov, A. B. Tsiomenko, K. D. Davranov, and I. S. Kulaev | 677 | 979 |
| Effect of Phospholipid Composition of Bilayer Lipid Membraine on Steady-State Kinetics of Proton Transfer - Yu. N. Antonenko, O. N. Kovbasnyuk, and L. S. Yaguzhinskii | 684 | 987 |
| Structure of Metabolic Pathways Combining the High Quality of End-Product Stabilization With High Transition Rates - O. V. Demin and B. N. Kholodenko | 692 | 997 |

| | Engl. | Russ. |
|---|---|---|
| Properties, Preparation, and Practical Use of Alkaline Phosphatase - N. N. Zueva, P. G. Dalev, and D. L. Lazarova | 702 | 1009 |
| Light-Induced Oxygen Uptake by Liposomes Contaning Carotenoids from the Purple Bacteria *Ectothiorhodospira halophila* - E. N. Malakhova and V. G. Remennikov | 713 | 1024 |
| Tannin-Mediated Attachment of Avidin to Erythrocytes does not Cause Their Complement-Mediated Lysis - V. R. Muzykantov, M. D. Smirnov, A. B. Zal'tsman, and G. P. Samokhin | 716 | 1027 |
| Some Features of Enkephalin Metabolism in Rat Brain Following Administration of Bestatin - N. A. Belyaev, E. F. Kolesanova, V. Yu. Baronets, and L. F. Panchenko | 721 | 1033 |
| Phosphorylation of HMG Proteins During Changes in Chromatin Transcription Activity in Neuronal and Glial Nuclei of Rat Brain - O. G. Kulikova and N. A. Bogdanova | 732 | 1047 |
| Characterization of Polyphosphatase Activity of Vacuoles of the Yeast *Saccharomyces cerevisiae* - N. A. Andreeva, L. P. Lichko, T. V. Kulakovskaya, and L. A. Okorokov | 737 | 1053 |
| Membrane ATPase Activity and Potassium Transport in Anaerobically Grown *Escherichia coli* trk Mutants - A. A. Trchunyan and A. V. Vasilyan | 745 | 1062 |
| Supramolecular Structures Based on Protein Conjugates With Polyalkylene Oxides: β-Cyclodextrin Complexes - N. V. Efremova and I. N. Topchieva | 753 | 1071 |
| Effect of Temperature and pH on ATP Hydrolysis by Duck Salt Gland $Na^+,K^+$-ATPase - N. U. Fedosova, E. A. Berdashkevich, S. N. Fedosov, and A. A. Boldyrev | 758 | 1077 |
| Interactions of Calf Thymus and Human Placental DNA-Primases With Oligonucleotide Templates of Various Lengths and Structures - R. O. Anarbaev, V. N. Podust, O. D. Zakharova, and O. I. Lavrik | 765 | 1085 |
| Dinitrosyl Iron Complexes With Thiol-Containing Ligands and Their Reversible Conversion into Nitrosothiols - A. F. Vanin, I. V. Malenkova, P. I. Mordvintsev, and A. Mülsch | 773 | 1094 |
| Proteolytic Enzymes in Human Leukemic Lymphoid Cells. I. Activities of Dipeptidyl Aminopeptidase IV, Plasminogen Activator, and Cathepsins B and L in Cells With Different Immunological Phenotype - L. A. Lokshina, V. S. Bylinkina, R. S. Samoilova, T. A. Gureeva, N. V. Golubeva, and A. M. Polyanskaya | 781 | 1104 |
| Proteolytic Enzymes in Human Leukemic Lymphoid Cells. II. Comparative Characterization of Proteolytic Enzymes and Their Inhibitors in Three Types of Lymphoid Cells - T. A. Gureeva, N. V. Golubeva, V. S. Bylinkina, L. A. Lokshina, and V. F. Pozdnev | 789 | 1116 |
| Effect of New Synthetic Cholesterol Derivatives on Cholesterol Metabolism in Cultured Rabbit Hepatocytes - É. T. Mambetisaeva, V. A. Kosykh, A. Yu. Misharin, E. I. Kosenkov, E. A. Podrez, and V. S. Repin | 797 | 1126 |


**Volume 58, Number 8, August, 1993**


| | Engl. | Russ. |
|---|---|---|
| New Site-Specific Endonuclease and Methylase from *Bacillus licheniformis* 736 - N. N. Matvienko, V. M. Kramarov, L. A. Zheleznaya, and N. I. Matvienko | 803 | 1139 |
| DNA-Bound Lipids: Composition and Possible Functions - V. A. Struchkov and N. B. Strazhevskaya | 815 | 1154 |
| Tumor Promotion Inhibitors: Five Classes of Phorbol Ester Antagonists - O. V. Kozhemyakina and L. S. Yaguzhinskii | 831 | 1176 |
| Oxaloacetate-Dependent $Ca^{2+}$ Transport in Rat Liver Mitochondria - T. V. Zharova and O. V. Tyulina | 841 | 1188 |
| New Method for Isolation of Acid-Resistant Trypsin Inhibitor from Human Urine - L. A. Belova, O. G. Ogloblina, and R. Bekkert | 850 | 1199 |

| | Engl. | Russ. |
|---|---|---|
| ATP-Dependent Structural Changes in Chromatin - V. I. Tyulenev, L. A. Konoplich, A. A. Krivonos, and S. N. Khrapunov | 856 | 1206 |
| Purification and Properties of *Clostridium thermocellum* Endoglucanase Produced in a Recombinant Strain of *Escherichia coli* - T. P. Mosolova, S. V. Kalyuzhnyi, and G. A. Velikodvorskaya | 862 | 1213 |
| Isolation and Characterization of α-Specific Thrombin-Like Enzymes from Venoms of the Pit Viper Snakes *Agkistrodon halys halys* and *Agkistrodon halys* Blomhoffii - D. A. Solov'ev and T. P. Ugarova | 869 | 1221 |
| Interaction of Perfluorooctylbromide With Liver Microsomal Monooxygenase - V. V. Obraztsov, A. Yu. Grishanova, D. G. Shekhtman, A. N. Sklifas, and K. N. Makarov | 879 | 1234 |
| Thioredoxin Reductase: Structure, Properties, and Functions - O. Labudova and M. Kollarova | 884 | 1240 |
| Interaction of Oligonucleotides With Blood Serum Proteins - V. V. Vlasov, L. V. Pautova, E. Yu. Rykova, and L. A. Yakubov | 890 | 1247 |
| Hexameric Organization of Cytochrome P-450$_{LM4}$ from Endoplasmic Reticulum Membranes of Rabbit Hepatocytes - K. N. Myasoedova | 894 | 1252 |
| Isolation and Characterization of Two Forms of Extracellular Low-Molecular-Weight Ribonuclease from *Bacillus* sp. BCF 247 - A. A. Dement'ev, P. N. Golyshin, N. F. Ryabchenko, V. N. Pustobaev, and S. V. Shlyapnikov | 899 | 1258 |
| Protective Effect of Cyclosporin A, Carnitine, and $Mg^{2+}$ Plus ADP During $Ca^{2+}$-Dependent Permeabilization of Mitochondria by Fatty Acids and During Activation of NADH Oxidation via an External Pathway - A. A. Starkov, O. V. Markova, E. N. Mokhova, E. Arrigoni-Martelli, D. Battelli, M. Bellei, and V. A. Bobyleva | 906 | 1266 |
| Induction and Catabolite Repression of Synthesis of Cellulase by *Cerrena unicolor* 062 - V. I. Élisashvili and Kh. A. Tusishvili | 915 | 1276 |
| Study of Relative Hydrophobicity and Other Properties of Lectins in Aqueous Two-Phase Polymer Systems - N. D. Gulyaeva, V. M. Lakhtin, B. Yu. Zaslavskii, and I. A. Yamskov | 921 | 1283 |
| Study of the Terminal Part of the Respiratory Chain from the Alkalotolerant Bacterium *Bacillus* FTU at Different Phases of Growth - M. S. Muntyan and E. V. Skripnikova | 928 | 1290 |
| Mechanism of Thermal Uncoupling of the Sarcoplasmic Reticulum $Ca^{2+}$-Pump: Change in Functional Properties and Structural State of the Enzyme Molecule - É. R. Geimonen, A. M. Rubtsov, and A. A. Boldyrev | 934 | 1296 |
| BIOCHEMISTRY NEWS | | |
| Regulation of N-Myristoylated Proteins: the Role of the Fatty Acid Residue - A. A. Gimel'brant | 943 | 1307 |


**Volume 58, Number 9, September, 1993**


| | | |
|---|---|---|
| Two Site-Specific Endonucleases from the Thermophilic Strain *Bacillus species* LU11 - L. A. Zheleznaya, N. N. Matvienko, and N. I. Matvienko | 945 | 1315 |
| Enzymatic Oxidation of a Bifunctional Protein Inhibitor of Proteases and α-Amylase - E. L. Gvozdeva, N. V. Ermolova, T. A. Valueva, and V. V. Mosolov | 952 | 1323 |
| Essential Tyrosine Residues in Transketolase of Baker's Yeast: I. Determination of the Type and Number of Essential Residues - M. V. Kovina, A. N. Kuimov, and G. A. Kochetov | 958 | 1330 |
| Essential Tyrosine Residues in Transketolase of Baker's Yeast: II. Investigation into the Function of Essential Residues - M. V. Kovina, A. N. Kuimov, and G. A. Kochetov | 968 | 1341 |
| Bioluminescence and Bioluminescent Analysis: Recent Development in the Field - N. N. Ugarova, L. Yu. Brovko, and G. D. Kutuzova | 976 | 1351 |

| | Engl. | Russ. |
|---|---|---|
| Thrombin: Structure—Function Relationships in Biochemical Interactions - A. V. Maksimenko | 993 | 1373 |
| Properties of a Protein Inhibitor of Nitrite Reductase from *Pseudomonas aeruginosa* - A. V. Karapetyan and R. M. Nalbandyan | 1001 | 1384 |
| $H^+$-ATPase of Yeast Vacuoles is Inhibited by Heparin - T. V. Kulakovskaya, A. Yu. Kuranov, and L. A. Okorokov | 1006 | 1389 |
| Purification and Immunochemical Characterization of Neutral $Mn^{2+}$-Dependent DNase of Chromatin - V. G. Vinter, N. L. Zotkina, Zo Syn Kha, and Z. I. Abramova | 1011 | 1394 |
| Comparative Studies of the Structural State of Skeletal Muscle and Smooth Muscle Fiber Tropomyosins in Ghost Fibers of Skeletal Muscles Using Fluorescent Probes - Yu. S. Borovikov, E. Nowak, M. I. Khoroshev, and R. Dabrowska | 1018 | 1403 |
| Effect of Structural Organization of Cholesterol Aggregates in Aqueous-Organic Media on Its Oxidation Catalyzed by Cholesterol Oxidase - Ya. A. Aleksandrovskii and V. N. Titov | 1022 | 1408 |
| A Metalloproteinase from *Bacillus mesentericus* B-313 - I. P. Morozova, M. P. Yusupova, M. Yu. Gololobov, N. K. Korol'kova, O. M. Khodova, and V. M. Stepanov | 1031 | 1420 |
| Regulation of Biosynthesis of Chlorophyll Precursors in Mutants of the Green Alga *Chlamydomonas reinhardtii* - E. M. Chekunova, N. V. Shalygo, E. B. Yaronskaya, N. G. Averina, and A. S. Chunaev | 1040 | 1430 |
| Inhibition of Cathepsin G and Human Granulocyte Elastase by Multiple Forms of Bowman—Birk Type Soybean Inhibitor - N. I. Larionova, I. P. Gladysheva, T. V. Tikhonova, and N. F. Kazanskaya | 1046 | 1437 |
| Elastase from Hepatopancreas of the King Crab (*Paralithodes camtschatica*) - I. Yu. Sakharov and A. V. Dzhunkovskaya | 1053 | 1445 |
| Study of Complex Formation Between NAD Kinase and Glutamate Dehydrogenase from Rabbit Liver Hyaloplasm - O. L. Voronina, D. A. Chistyakov, and V. I. Telepneva | 1061 | 1454 |
| A New b-Type Cytochrome From Whitefish (Coregonidae) Eggs - D. S. Valyushok, V. Ya. Bykhovskii, and V. Yu. Artsatbanov | 1066 | 1460 |
| Light-Induced Synthesis of Pheophytin a in Plant Leaves - N. V. Ignatov and F. F. Litvin | 1074 | 1469 |
| DISCUSSIONS | | |
| Inadequacy of One Hypothesis on Liberation of $O_2$ During Photosynthesis - V. D. Samuilov | 1084 | 1481 |


**Volume 58, Number 10, October, 1993**


| | Engl. | Russ. |
|---|---|---|
| Import of Cytoplasmic Lysine tRNA into Bakers' Yeast Mitochondria: *in vivo* and *in vitro* Test Systems - I. A. Tarasov, N. S. Éntelis, and I. A. Krasheninnikov | 1089 | 1493 |
| Effect of Phosphorylation on the Catalytic Function of Muscular Pyruvate Dehydrogenase Complex - L. G. Korochkina, L. S. Khailova, and S. E. Severin | 1097 | 1503 |
| Uncoupling of Oxidative Phosphorylation by Fatty Acids in Liver and Muscle Mitochondria - E. N. Mokhova, A. A. Starkov, and V. A. Bobyleva | 1105 | 1513 |
| Lysoamidase: a Bacteriolytic Enzyme—Polysaccharide Complex of Microbial Origin. I. Investigation of the Nature of the Enzyme—Polysaccharide Interactions - O. A. Stepnaya, L. A. Ledova, and I. S. Kulaev | 1113 | 1523 |
| Phosphorylation of Cytochrome $P\text{-}450_{scc}$ by Protein Kinase C: Protective Effects of Adrenodoxin and Cytochrome $b_5$ - N. A. Lobanov, C. E. Hensey, S. A. Usanov, and A. Azzi | 1118 | 1529 |
| Luminol Oxidation in Detergent-Free Microemulsions (Hexane—Isopropanol—Water) Catalyzed by Horseradish Peroxidase or Hemin - A. V. Puchkaev and D. I. Metelitsa | 1125 | 1538 |

| | Engl. | Russ. |
|---|---|---|
| A Study of the Synergistic Action of α-Amylase and Glucoamylase on Soluble and Insoluble Amylose - A. N. Shevel'kova and A. P. Sinitsyn | 1134 | 1548 |
| Hydrolysis of Insoluble Amylose: Adsorption of Amylolytic Enzymes - A. N. Shevel'kova and A. P. Sinitsyn | 1139 | 1555 |
| Functional State of the Xenobiotic Biotransformation System in Animals Intoxicated With Diphenylamine or N-Nitrosodiphenylamine - I. V. Semak and A. T. Pikulev | 1144 | 1562 |
| Use of [$^3$H]Methylenediphosphonic Acid for Characterization of the Methylenediphosphonate Transport System in *Arthrobacter sp.* GLP-1 - G. M. Yakovleva and G. M. Blackburn | 1148 | 1566 |
| Prostaglandin H Synthase: Chemical Modification of Histidine Residues in Different Forms of the Enzyme With Diethyl Pyrocarbonate - A. T. Mevkh, K. A. Miroshnikov, N. D. Igumnova, and S. D. Varfolomeev | 1154 | 1573 |
| DNA-Dependent RNA Polymerase II from Nuclei of Human Placenta Cells - V. M. Sedova and V. I. Vorob'ev | 1159 | 1580 |
| Nitrogenase and Hydrogenase Activities in Preparations of Phycobilisomes Isolated from Cyanobacterium *Nostoc muscorum* - O. D. Bekasova and A. A. Krasnovskii | 1165 | 1587 |
| Redistribution of Rabbit Blood Serum Lipoproteins Following a Single Injection of Cholesterol - G. Kh. Bozhko and V. M. Kulabukhov | 1171 | 1594 |
| Study of Features of Structural Organization of Chromatin Isolated from Different Sources - E. I. Ramm, G. S. Ivanov, and V. I. Vorob'ev | 1178 | 1604 |
| DNA Methylases from Human Thyroid Nodular and Diffuse Goiters - I. I. Nikol'skaya, E. V. Sharkova, E. N. Zenina, N. G. Lopatina, B. A. Atakhanova, A. T. Adylova, A. É. Koneeva, L. I. Kovalev, and S. S. Shishkin | 1187 | 1616 |
| $^{31}$P NMR Spectroscopic Study of the Metabolism of the Fusidin-Producing Fungus *Fusidium coccineum* - I. N. Shchipanova, Yu. É. Bartoshevich, L. A. Sibel'dina, and A. V. Mishchenko | 1194 | 1625 |
| Effect of Q Cycle Inhibitors on Menadione-Induced Cyanide-Resistant Malate Oxidation by Rat Liver Mitochondria - G. M. Kolesova, L. V. Karnaukhova, N. K. Segal', and L. S. Yaguzhinskii | 1198 | 1630 |
| Ganglioside Lactones in Human Gastric and Breast Tumors - E. A. Tekieva and É. V. Dyatlovitskaya | 1207 | 1641 |
| Regulation of Biosynthesis of Pheophytin a in Plant Leaves by Light - N. V. Ignatov and F. F. Litvin | 1210 | 1645 |
| Conjugation of the Classical Soybean Bauman—Birk Inhibitor With a Copolymer of Ethylene Oxide and Propylene Oxide - N. I. Larionova, I. P. Gladysheva, I. N. Topchieva, and N. F. Kazanskaya | 1220 | 1658 |


**Volume 58, Number 11, November, 1993**


| | Engl. | Russ. |
|---|---|---|
| Bowman—Birk Soybean Inhibitor as an Affinity Ligand for Isolation of Leukocyte Elastase: Inhibition of Leukocyte Elastase-Mediated Elastin Hydrolysis - T. V. Tikhonova, N. I. Larionova, I. P. Gladysheva, and N. F. Kazanskaya | 1227 | 1669 |
| Structure and Regulation of Skeletal Muscle Phosphorylase Kinase - N. B. Livanova | 1234 | 1677 |
| Membrane Lipids as Regulators of Neurotransmitter Receptor Function - O. S. Belokoneva and S. V. Zaitsev | 1240 | 1685 |
| Effects of Tocopherol and Its Analogs on *in vivo* Lipid Peroxidation and Electron Transport in Rat Liver Mitochondria - N. I. Kunitsa, I. V. Kuz'menko, S. M. Alekseev, E. I. Zakharova, and G. V. Donchenko | 1256 | 1709 |

| | Engl. | Russ. |
|---|---|---|
| Dissociation of Chromatin Domains During The Cell Cycle in Developing Barley Seedlings - T. G. Sjakste, Z. R. Taurite, and I. D. Rashal' | 1260 | 1714 |
| Possible Involvement of Two-Electron-Reduced Lipoamide Dehydrogenase in the Quinone-Reductase Reaction - Ž. J. Anusevičius and N. K. Čenas | 1268 | 1723 |
| Steady-State Kinetics of Amperometric Bienzyme Sensors Involving Cyclic Conversions of Substrate - V. V. Sorochinskii and B. I. Kurganov | 1274 | 1729 |
| Possible Role of the Mitochondrial Outer Membrane in Regulation of Oxidative Phosphorylation in Living Cells - E. V. Vasil'eva, Yu. O. Belikova, S. A. Lyapina, L. E. Petrova, A. V. Kuznetsov, N. A. Perov, J. Clarke, and V. A. Saks | 1285 | 1742 |
| Effect of Conjugates of Bovine Serum Albumin With Polyalkylene Oxides on Respiration of Heart Mitochondria - M. V. Teplova, I. A. Gorskaya, B. I. Kurganov, and I. N. Topchieva | 1296 | 1755 |
| Interrelationship of Microsomal and Mitochondrial Steroid Hydroxylation Systems of Bovine Adrenal Cortex: Effect of Highly Purified Components of the Mitochondrial Monooxygenase System on Steroid Hydroxylation by Microsomes - V. M. Guzov, I. N. Zel'ko, A. A. Chernogolov, and S. A. Usanov | 1302 | 1761 |
| Comparison of 7SL RNA-Associated Proteins Isolated from Canine Pancreas and Rabbit Reticulocytes - A. Ts. Avanesov | 1309 | 1771 |
| Rotenone-Sensitive Oxidation of NADH and Activity of $F_0F_1$-ATPase in Rat Skeletal Muscle Homogenates During Thermal Adaptation - V. B. Ritov, L. R. Gorbacheva, I. L. Tverdislova, Yu. N. Leikin, and Yu. I. Bazhenov | 1315 | 1779 |
| Effect of Steroids on Transcortin Binding to Human Syncytiotrophoblast - E. P. Kiseleva, I. I. Vashkevich, and O. A. Strel'chenok | 1322 | 1788 |
| Concentration–Function Relationships in the Alternative Pathway of Human Complement Activation - L. V. Galebskaya, I. G. Shcherbak, P. P. Bel'tyukov, E. V. Ryumina, and I. L. Solovtsova | 1328 | 1796 |
| Ganglioside $GD_3$ Amides - Ya. N. Malykh, O. S. Gamora, and É. V. Dyatlovitskaya | 1332 | 1801 |
| Study of Hydrolysis of 5-Fluorodeoxycytidine-Containing DNA Duplexes With Restriction Endonucleases - G. Ya. Sheflyan, E. A. Kubareva, E. S. Gromova, and Z. A. Shabarova | 1336 | 1806 |
| Mitochondrial Proteolipids - N. K. Segal', S. É. Gasanov, L. A. Palamarchuk, A. K. Yus'kovich, G. M. Kolesova, S. É. Mansurova, and L. S. Yaguzhinskii | 1341 | 1812 |
| Crystallization of Three Forms of Baker's Yeast Transketolase - A. N. Kuimov, N. V. Konareva, M. Yu. Filippov, A. M. Mikhailov, and G. A. Kochetov | 1348 | 1820 |


**Volume 58, Number 12, December, 1993**


| | | |
|---|---|---|
| Isolation of Site-Specific Endonuclease and Methylase from *Bacillus cereus* 83 - N. N. Matvienko, V. M. Kramarov, L. A. Zheleznaya, and N. I. Matvienko | 1357 | 1845 |
| Isocitrate Dehydrogenases: Forms, Localization, Properties, and Regulation - T. N. Popova | 1370 | 1861 |
| Structural Organization of Membranes in Plasmid-Containing and Plasmid-Free *Salmonella derby* Cells: Role of Phospholipids and Phospholipid Fatty Acids - A. Z. Pepoyan, L. M. Ovsepyan, A. Yu. Pogosyan, G. A. Oveyan, A. A. Arutyunyan, L. T. Amirkhanyan, Zh. A. Ktsoyan, and K. G. Karagezyan | 1384 | 1880 |
| An Efficient One-Step Method for Isolation of Elastase and Cathepsin G from Human Leukocytes - E. A. Neshkova, V. L. Dotsenko, N. I. Larionova, and G. A. Yarovaya | 1389 | 1886 |

| | Engl. | Russ. |
|---|---|---|
| Biosynthesis of Two Molecular Forms of Ceruloplasmin in Rat Liver: Polar Secretion Into Blood and Bile - L. V. Puchkova, T. D. Aleinikova, I. A. Verbina, E. T. Zakharova, M. G. Pliss, and V. S. Gaitskhoki | 1395 | 1893 |
| Thermoluminescence Study of Photosystem II in a Greening Mutant of *Chlorella kessleri*. I. Structure–Functional Properties of Photosystem II Complexes in Green Cells - V. A. Boichenko, S. Demeter, and V. V. Klimov | 1402 | 1902 |
| Thermoluminescence Study of Photosystem II in a Greening Mutant of *Chlorella kessleri*. II. Biogenesis of Photosystem II Complexes in Yellow Cells - V. A. Boichenko, S. Demeter, and V. V. Klimov | 1409 | 1911 |
| Extracellular Alkaline Proteinase of *Bacillus intermedius*. Isolation and Some Properties - N. P. Balaban, M. P. Sharipova, A. M. Usmanova, E. L. Itskovich, and I. B. Leshchinskaya | 1418 | 1923 |
| Structure-Functional Properties of Protein Conjugates With Polyalkylene Oxides: A Fluorescent Study - M. V. Teplova, B. I. Kurganov, I. A. Gorskaya, I. N. Topchieva, N. V. Efremova, and T. L. Bushueva | 1423 | 1929 |
| Changes in Particle Size in Actomyosin Suspensions During Superprecipitation - N. S. Shelud'ko, I. V. Kropacheva, and T. V. Permyakova | 1430 | 1936 |
| Inactivation of Naloxone Binding to Rat Brain Opioid Receptors - O. S. Belokoneva, E. L. Mal'tseva, S. V. Zaitsev, and N. P. Pal'mina | 1437 | 1945 |
| Biosynthesis and Some Properties of Laccase from *Lentinus tigrinus* IBR-101 - M. K. Goshadze and V. I. Élisashvili | 1448 | 1959 |
| Interrelationship Between Two Forms of DNA Polymerase α from Eggs of the Teleost Fish *Misgurnus fossilis* L. (Loach) - N. P. Sharova, E. D. Eliseeva, and V. S. Mikhailov | 1453 | 1965 |
| To the memory of Sergei Evgenievich Severin | 1463 | 1977 |